Latent Possibilities
of
Tactile Perception

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LATENT POSSIBILITIES OF TACTILE PERCEPTION

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Perception depends upon sensation and interpretation of that sensation. Clear registration of sensation is possibly only when the anatomical mechanism is correctly adjusted for receiving, transmitting, and recording it. The interpretation of a sensation depends first on its clear registration, secondly on the attention given to it, and thirdly on the previous experiences with which it can be correlated. A normal young child is provided with a full equipment for registering sensations; sights, sounds, odors, tastes, and skin contacts bombard its sensorium and are registered there, but the greater number of these sensations receive no attention. At first, only those sensations that register most strongly reach consciousness, and, of these stronger impressions, the ones that cause distinct discomfort or definite pleasure receive attention. When one particular sensation has been singled out from the myriad incoming impressions by receiving conscious attention, it becomes an experience, and by its very presence, modifies the next experience; thus each succeeding experience being added to those already accumulated builds up a fund of knowledge in the light of which future impressions are interpreted. The fullness of this interpretation, therefore, is dependent upon the wealth of the accumulated knowledge and upon the completeness of the attention bestowed on it.

In the case of adults, habit greatly modifies perception. Many stimuli reach the peripheral sense organs and pass over the nerve paths to the sensorium but do not rise above the threshold of consciousness, or, if they do, are quickly supressed as negligible. Training of the power of observation is, therefore, merely a matter of requiring the attention to take more careful notice of incoming sensory impressions. For example, if a man were to rest his hand on a table, he would ordinarily give little heed to its polish or the grain of its wood, but if the surface were dirty or sticky enough to produce a sense of slight discomfort his attention would be directed to that fact and he would take note of it. The habit of expecting to derive sufficient information concerning our surroundings through the operation of one set of sense organs —especially those of sight—inclines us to neglect the impressions arriving at the sensorium over other sensory paths. And this is also one of the reasons why so many possibilities remain latent in the mechanism of tactile sensation. Through the sense of sight we get a perception of an object such as a table which is accurate and detailed enough to serve our ordinary needs, and we form the habit of dismissing as unimportant other concomitant impressions arising from the table and conveyed to the sensorium over other sensory nerve paths. As far as general information relating to the world about us is concerned, the sensory impressions that usually receive our attention are sufficient to enable us to react to our environment in a manner which permits us to live quite comfortably. But, as osteopaths, our professional success depends primarily upon accuracy of diagnosis, and that accuracy is, in turn, dependent on acuteness of tactile perception, it then behooves us to study to develop our latent powers of tactile perception.

LESSON FROM WILLETTA HUGGINS

The extent to which these latent possibilities may become potential powers is shown in the remarkable case of Willetta Huggins. So far as is known, this girl possessed the ordinary powers of sense perception during her early childhood; and she used these powers, as all children do, to gather a store of knowledge of her environment. It seemed, however, that she did not possess average mental capacity, for at the age of ten years she had reached only the second grade in the public school; and at this time it was discovered that her sight was too defective to permit her to do the grade of work done by seeing children, and she was admitted to the School for the Blind at Janesville, Wisconsin. How much of Willetta's failure to make satisfactory progress in school up to this time was due to her visual and auditory senses, is not known, but that it was a factor cannot be doubted. Her progress at the School for the Blind, where the visual defect was compensated for by the method of study and the auditory failure was discovered and allowed for, was still slow when compared with that of the other blind students. Mental deficiency, however, can hardly be accepted as an explanation of this child's failure to advance at a satisfactory rate; for her intellectual power seems at present rather above than below what is considered normal.

SIGHT AND HEARING GONE

At the age of twelve years Willetta's hearing utterly failed, and one year later her sense of sight was entirely lost. Thorough and painstaking examinations by eminent medical authorities revealed only that the loss of both sight and hearing was complete and that there was not the slightest hope of any improvement. The little girl was doomed to live out her life in a world where neither a ray of light nor a wave of sound could penetrate: and this, at first, seemed more than she could bear. She must have been a pathetic little figure, despondent as she was and making little effort to grapple with the situation. The manual alphabet had been taught her when the defect in her hearing was first discovered, but this was such an inadequate substitute for the world of light and sound that she had lost that she ignored it except as a means of the most necessary communication with those about her. Nevertheless, the letters formed by the fingers and read by feeling the positions of the hand of the speaker, were the means of bringing the suggestion to Willetta by which she has become the wonder of the merely curious, and a source of much profitable study to the more thoughtfully-minded.

An account of her powers of tactile and olfactory perception reads like a tale from The Arabian Nights; but, as it illustrates as nothing else does, the possibilities of human development along these lines, I will give a brief account of some of these remarkable phenomena that I had the opportunity of observing. Careful tests show, beyond the shadow of a doubt, that this girl—now seventeen years of age—is unable to perceive the strongest light or the loudest sound. While Willetta held in her hand, the end of a wooden bar six or eight feet long, Mr. Hooper, the superintendent of the School for the Blind at Janesville, placed the other end of the bar on his chest and conversed with her in an ordinary conversational tone of voice; her replies being given in a natural tone, showed that she clearly understood what was being said; the result was equally good when the end of the bar rested on

Mr. Hooper's head instead of on his chest. But when he laid the bar aside, came closer to Willetta, and spoke in a much louder tone, she appeared wholly unconscious that she had been addressed, it was quite apparent that she heard nothing.

In using the telephone, Willetta, instead of putting the receiver to her ear places one finger over its diaphram and takes her part in the telephone conversation without the slightest hesitation. Her original means of getting what a companion was saying was to place her hand lightly on the speaker's chest or throat; but when her manner of reading the spoken word was understood, an instrument consisting of an amplifier and a receiver such as are used on a radiophone, was constructed for her, and with this help she can follow and take part in a conversation carried on among several people. This ability to read ordinary speech without being able to hear any sound, came about in the following way. When the period of despondency that followed Willetta's loss of sight and hearing had gone on for several months, a friend succeeded in making her understand, by means of the manual alphabet, that Helen Keller, although both deaf and blind, could understand spoken language by placing her finger-tips on the lips and throat of the speaker. Sometime after this Mr. Hooper was greatly surprised when he attempted to communicate with Willetta by means of the manual alphabet, to have her place her fingers lightly on his chest and tell him that she could understand if he would talk. Remembering that she had often kept her hand resting on her own throat or chest and on those of her school-mates when they were speaking, Mr. Hooper tested her carefully until he was convinced that this girl had taught herself to interpret the vibrations of the bony-framework of the body of a speaker, and thus catch the meaning of his words. A matter of receiving vibrations produced by the vocal organs through the tactile corpuscles instead of through the ear. The wonder is not that Willetta receives these vibrations, for we all can do so much, but that she can interpret them as spoken words. This is what we who can hear speech are unable to do because we have not needed to train ourselves to notice or to interpret vibrations which reach our tactile sense. When vibrations enter the ear they pass on to the organ of Corte and the vestibulum, and by means of these sense organs, stimulate the auditory nerve, setting up currents in it which are registered at the inferior quadrigeminal and the internal geniculate bodies whence they are relayed to the higher centers of hearing in the temporal lobe of the cerebrum where they are correlated with other sensory impressions, past and present, and if of sufficient importance and intensity they rise above the threshold of consciousness as sounds. Here it receives the degree of attention which, in the light of experience, its importance to the individual receiving it demands. If a sound is recognized as the cry of a neighbor's child, it receives less attention from a woman then it would had it been the cry of her own child. Furthermore, a student of birds will be conscious of differences in bird calls which would not be noticed by a person without that particular training.

While Willetta Huggins could hear, she did not take the trouble to learn the significance of the impressions made upon her tactile corpuscles by sound vibrations: But when this power of hearing was lost, she sought means of intensifying these tactile impressions and deliberately taught herself to interpret them. The skill that she has attained in translating into the equivalent of sound the vibrations that reach her through her tactile sense is the remarkable thing in this case. We can readily understand that Willetta's ability to read spoken language through her sense of touch depends first upon the clearness with which the sensory impression is registered, secondly upon the amount of attention that it receives, and thirdly upon her assiduously acquired experience of the meaning of such impressions. Thus realizing the acuteness of her tactile perceptions, we are not greatly surprised to learn that this young lady is able, by touch, to determine the denomination of paper currency, to spell out the letters of newspaper head lines merely by passing her fingers lightly over them, and in the same manner to detect the figures in unglazed pictures. We, ourselves can distinguish between the feeling of a dollar bill and a piece of newspaper, and some of us could trace the outline of the figures on paper money. But while we are able to call upon our eyes to explain this difference registered by our sense of touch, we shall probably not take the trouble to train our tactile perception along this line. But, with this case as an illustration of the possibilities latent in our tactile mechanism, it would be well for osteopaths to train themselves more fully to perceive the meaning of impressions which they may gain from tissue palpation.

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